

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A bandwidth divider for allocating bandwidth between a plurality of packet processors, comprising:

- (a) a plurality of counters indicative of a level of bandwidth consumption of each of the packet processors for measuring the bandwidth of data packets transferred from the bandwidth divider to a respective packet processor; and
- (b) a controller for analyzing the level of bandwidth consumption of each of the packet processors based on the plurality of counters and[;] transferring allocating a data packet to a selected one of the packet processors processor based on the contents of the plurality of counters having a lowest level of bandwidth consumption.

A/ Claim 2 (original): The bandwidth divider of claim 1, wherein the bandwidth divider includes a plurality of interfaces, each coupled to an input and output stream.

Claim 3 (original): The bandwidth divider of claim 2, wherein the plurality of counters includes a counter for each input stream/packet processor combination.

Claim 4 (currently amended) The bandwidth divider of claim 2, further comprising a plurality of queues, one for each input stream/packet processor combination, each queue operable to receive packets and forward packets stored therein in accordance with the selection allocating of the controller.

Claim 5 (original): The bandwidth divider of claim 4, wherein the input stream/packet processor combinations are organized as linked lists in a common memory pool.

Claim 6 (original): The bandwidth divider of claim 1, wherein the packet processor is a packet forwarding engine.

Claim 7 (canceled)

Claim ⁷~~8~~ (currently amended): The bandwidth divider of claim 7 1, further comprising a decrement engine operable to decrement at least one of the counters indicative ~~indication~~ of the level of bandwidth consumption of the one of the packet processors ~~processor is decremented~~ over time.

Claim ⁸~~9~~ (currently amended): The bandwidth divider of claim ⁷~~8~~, wherein the ~~decrementation~~ is performed decrement engine is further operable to decrement the at least one counter in accordance with a half-life decay function.

Claim ⁹~~10~~ (currently amended): The bandwidth divider of claim 7 1, further comprising a normalizing engine operable to normalize ~~the indication~~ at least one of the counters indicative of the level of bandwidth consumption of the one of the packet processor ~~processors~~ after each packet is processed.

Claim ¹⁰~~11~~ (currently amended): The bandwidth divider of claim ⁹~~10~~, wherein the ~~indication of~~ the level of bandwidth consumption of the packet processor at least one of the counters is normalized such that ~~the~~ a lowest indication for all of the counters is 0.

Claim 12 (canceled)

Claim ¹¹~~13~~ (currently amended): The bandwidth divider of claim 7 1, further comprising a random selector, wherein if the controller determines that a plurality of the packet processors have an identical, lowest level of bandwidth consumption, the controller ~~transfers~~ allocates the data packet to one of the plurality of packet processors having the lowest level of bandwidth consumption randomly selected by the random selector.

Claim ¹²~~14~~ (currently amended): The bandwidth divider of ~~Claim~~ claim ¹¹~~13~~, wherein the random selector includes a Linear Feedback Shift Register function and the controller is operable to ~~transfer~~ allocate the data packet in accordance with the Linear Feedback Shift Register function.

¹³
Claim ~~15~~ (currently amended): A router comprising:

- (a) a plurality of bandwidth dividers for receiving a first set of input streams and providing a first set of output streams;
- (b) a plurality of packet processors for receiving the first set of output streams from the bandwidth dividers and providing a second set of input streams;
- (c) a plurality of counters for monitoring the flow of data from the bandwidth dividers to the packet processors;
- (d) a controller for monitoring the counters and allocating the streams of data between the packet processors; and
- (e) a plurality of cross-bars for receiving the second set of input streams from the packet processors, multiplexing the second set of input streams, and providing a second set of output streams.

¹⁴
Claim ~~16~~ (currently amended): A method of directing data packets to a plurality of packet processors, comprising ~~the steps of~~:

- monitoring ~~the~~ bandwidth consumed by the packet processors;
- determining, based on the bandwidth consumed by the packet processors, which one of the packet ~~processor~~ processors has consumed ~~the~~ a least amount of bandwidth;
- allocating a next data packet to the one of the packet ~~processor~~ processors which has consumed the least amount of bandwidth.

¹⁵ ¹⁴
Claim ~~17~~ (original): The method of claim ~~16~~, further including incrementing counters to track the bandwidth consumed by the packet processors.

¹⁶ ¹⁴
Claim ~~18~~ (original): The method of claim ~~16~~, further including incrementing one counter for each input and output pair to track the bandwidth consumed by the packet processors.

¹⁶ ¹⁵
Claim ~~19~~ (currently amended): The method of claim ~~18~~, wherein the determining step includes comparing the counters to ascertain the counter with ~~the~~ a lowest value.

¹⁷ ¹⁶
Claim ~~20~~ (currently amended): The method of claim ~~19~~, wherein:

the determining step further includes determining if two or more of the counters have ~~the~~ an identical, lowest value; and

the allocating step further includes, if two or more of the counters have the identical, lowest value, allocating the next data packet randomly ~~as between to one of the packets~~ packet processors corresponding to one of the two or more counters with having the identical, lowest value.

¹⁸
Claim ~~21~~ (original): The method of claim ~~17~~, including decrementing the counters over time.

¹⁹
Claim ~~22~~ (original): The method of claim ~~17~~, including decrementing the counters over time using a half-life decay function.

²⁰
Claim ~~23~~ (original): The method of claim ~~17~~, including normalizing the counters.

²¹
Claim ~~24~~ (original): The method of claim ~~17~~, including normalizing the counters by subtracting the value of the lowest counter from all counter values.

²²
Claim ~~25~~ (new): A method of allocating data packets to a plurality of packet processors, the method comprising:

receiving a data packet into an input queue of a bandwidth divider;

sending a data packet ready signal to a controller;

reading, by the controller, values in an I/O counter indicative of an amount of bandwidth consumed by the packet processors;

determining, by the controller, which one of the packet processors consumed a least amount of bandwidth; and

allocating the data packet to the one of the packet processors that consumed the least amount of bandwidth.

²⁴
Claim ~~26~~ (new): The method of claim ~~25~~, further comprising:

adding, to one of the values in the I/O counter, a length of the data packet.

²⁵
Claim ~~27~~ (new) The method of claim ~~25~~²³, further comprising:
normalizing the values in the I/O counter.

²⁶
Claim ~~28~~ (new): The method of claim ~~25~~²³, further comprising:
decrementing the values in the I/O counter over time.

²⁷
Claim ~~29~~ (new): The method of claim ~~25~~²³, further comprising:
decrementing the values in the I/O counter in accordance with a half-life decay function.

²⁸
Claim ~~30~~ (new): The method of claim ~~25~~²³, wherein:
when the determining determines that at least two of the packet processors have a same least
amount of bandwidth consumed, the determining selects one of the at least two packet processors
randomly.
